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ECOLOGY OF THE MACKENZIE DELTA REGION

SYNOPSIS OF AN OVERVIEW

By: DR. LAWRENCE C. BLISS

FOR THE

MACKENZIE VALLEY PIPELINE INQUIRY

INUVIK, N.W.T.

JANUARY 1976



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Introduction

Background on the scientific information developed over the past 10 years vs. previous 30-50 years. Importance of this information scientifically, as an aid in managing northern renewable resources, and in providing data base for environmental management of northern development. Never have all the data but can obtain enough to enable important decisions to be made.

General Background

Mackenzie Delta second largest in North America and most important one in the N.A. Arctic. The river system carries warm waters from the south which results in a northern extension of boreal conditions and provides greater food base for native people than elsewhere in Canada for these latitudes. (Slides to depict northern extent of forests, location of settlements, general topography - new vs. old Delta area, climatic data for Aklavik, Inuvik, Tuktoyaktuk). Also slides to show: 1) power line, road, IBP sites, 2) oil and gas discoveries, and 3) proposed gas dev.

Presentation is divided into 4 parts, only 3 are covered in detail: 1) Old Delta; 2) New Delta and river; 3) Offshore marine (estuary); and 4) Beaufort Sea and Yukon Coast (only briefly considered).

Major Regions Within the Delta

Old Delta

Rolling uplands Caribou Hills and lands east to Eskimo Lakes and north including most of Richards Island (map slide). Stress



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vegetation in relation to topography and the role this plays in wildlife (reindeer, ground squirrels, ptarmigon, etc.) distribution. Discuss history of reindeer herd, Reindeer Station (slide), seasonal movements of herd (slide) food preferences, etc. (2-3 slides). Discuss in general upland mammals, considerable number of species, but low density (slide). Mention Arctic ground squirrel and grizzly bear for Richards Island (2 slides). Discuss bird fauna of the uplands. Only 3 year-round resident species, 29 common to abundant species and 57 summer resident species. Song bird fauna is largest but difficult to count. Upland lakes have more waterfowl than floodplain lake and small lakes (1.5 acres) more than large lakes (> 40 acres) (slides). Raptors minor in total area, yet a relatively large concentration at the Campbell Lake area (IBP #48). Discuss fish fauna of upland lakes and their growth rates, also some information on lake chemistry and total biota (2+ slides).

New Delta

The modern delta along with islands west of Richards Island and areas along East Channel. The major points will be vegetation and the importance of white spruce, the sedge lands of Ellice and Langley Islands as they relate to fall feeding of waterfowl prior to migration. Also discussed will be the diversity of fish and their use as well as limited information on the river itself (Chemistry, silt load, thermal role, etc.) and the importance of muskrat and something of their ecology (10-12 slides to illustrate various points).

Estuary

This area includes the shallow bays and the offshore barrier islands. Limited information will be given on birds and mammals as well as vegetation of the islands. The main emphasis will be on physical and

chemical features of the waters the presence of two invertebrate communities and ecological aspects of beluga whale (6-10 slides to illustrate various points).

Beaufort Sea and Yukon Coast

These areas will be touched on only briefly. The Beaufort Sea to discuss in general the importance of marine life to coastal native people and the Yukon Coast because of its importance for caribou, waterfowl and grizzly bear (2-4 slides).

Summary

This short unit will highlight the main points of the previous sections in terms of northern ecology and human use, stressing the general low production of these lands and waters, thus the limited ability to support people now and in the future (1-3 slides).

CURRICULUM VITAE

Name: Lawrence C. Bliss

Present Position: Professor of Botany, University of Alberta
Director, Devon Island Project IBP
Director, Controlled Environment Facility

Personal Data: Born: November 29, 1929, married
2 children

Education: B.S. Kent State University, 1951
M.S. Kent State University, 1953
Ph.D. Duke University, 1956.

Experience: Instructor, Bowling Green, State
University, 1956-57
Instructor, 1957-58
Assistant Professor 1958-61
Associate Professor 1961-66
Professor of Botany, University of Illinois 1966-68
Professor of Botany, University of Alberta 1968-
Fulbright Research Fellowship, New Zealand 1963-64
Member, U.S. National Committee IBP 1966-68
Member, NRC Geotechnical Subcommittee
(Pipelines) 1970-1972
Member, NRC Environmental Biology Grants
Selection Committee 1971-73
Editor, Oecologia 1970 -
Member, Biological Sciences Committee, World Book
Encyclopedia 1970 -
Member, Environmental Protection Board of Canadian
Arctic Gas Study Ltd. 1971 -
Member, Museums of Canada Consultation Committee 1975 -
Coordinated four years of applied ecological
research in the Mackenzie Delta Region in
relation to oil and gas development.

Professional Organizations:

Canadian Botanical Association
Ecological Society of America
Fellow, Arctic Institute of North America
Fellow, American Association for the
Advancement of Science.
American Institute of Biological Sciences
Sigma xi

Research:

20 years of arctic and alpine ecological research
in North America and New Zealand
Publications:
2 books
71 papers including 63 in scientific journals,
4 edited books and 4 book reviews

